

WHAT IS CLAIMED IS:

1. A polyurethane compound comprising a first component and a second component, said first component consisting of a blend of different polyether based MDI prepolymers, each of said polyether prepolymers having a different diphenylmethane diisocyanate content and said second component comprising an amine curing agent consisting of a blend of diamines.

2. The polyurethane compound according to claim 1, wherein said first and second components are present in a volumetric mix ratio of the first component to the second component in the range of from about 0.9:1 to about 1:1.

3. The polyurethane compound according to claim 1, wherein said first and second components are present in a volumetric mix ratio of the first component to the second component in the range of from about 0.95:1 to about 1:1.

4. The polyurethane compound according to claim 1, wherein each of said first and second components when in an uncured state is liquid at room temperature.

5. The polyurethane compound according to claim 1, wherein said first component has a NCO content in the range of from about 11.5% to about 14.5%.

6. The polyurethane compound according to claim 5, wherein said NCO content is in the range of from about 12% to about 14%.

7. The polyurethane compound according to claim 5, wherein said NCO content is about 13%.

8. The polyurethane compound according to claim 1, wherein said first component comprises a blend of a first diphenylmethane diisocyanate component having a density of about 1.2 g/cm³, an equivalent weight of about 286 g/mol and a NCO content in the range of from about 13.5% to about 16.5% and a second diphenylmethane diisocyanate component having a density of about 1.06 g/cm³, an equivalent weight of about 375 g/mol, and a NCO component in the range of from about 9.7% to about 12.7%.

9. The polyurethane compound according to claim 1, wherein said first component has a first diphenylmethane diisocyanate component with a NCO content in the range of from about 14% to about 16% and a second diphenylmethane diisocyanate component with a NCO content in the range of from about 10.2% to about 12.2%.

10. The polyurethane compound according to claim 1, wherein said first component has a first diphenylmethane diisocyanate component with a NCO content of about 15% and a second diphenylmethane diisocyanate component with a NCO content of about 11.2%.

11. The polyurethane compound according to claim 1, wherein said second component comprises a blend of two oligomer diamines having different equivalent weights and an amine having chlorine groups attached thereto.

12. The polyurethane compound according to claim 11, wherein said second component has an amine to NCO stoichiometric ratio between about 0.85:1 and about 1.05:1.

13. The polyurethane compound according to claim 12, wherein

said amine to NCO stoichiometric ratio is between about 0.9:1 and about 1:1.

14. The polyurethane compound according to claim 12, wherein said amine to NCO stoichiometric ratio is about 0.95:1.

15. The polyurethane compound according to claim 11, wherein said second component comprises a blend of a first oligomeric diamine having an equivalent weight of about 235 g/mol and a density of about 1.04 g/cm³, a second oligomeric diamine having an equivalent weight of about 415 g/mol and a density of about 1.04 g/cm³, and a diamine having an equivalent weight of about 190 g/mol and a density of 0.95 g/cm³.

16. A polyurethane compound for potting vanes for use in a turbine engine, said polyurethane compound comprising:

a first component comprising a blend of different polyethers based on diphenylmethane diisocyanate; and
- a second component comprising a blend of oligomeric aromatic diamines and an aromatic diamine with a catalytic component.

17. The polyurethane compound according to claim 16, further comprising each of said first and second components being liquid at room temperature when in an uncured state.

18. The polyurethane compound according to claim 16, further comprising a volumetric mix ratio of the first component to said second component in the range of from about 0.9:1 to about 1:1.

19. The polyurethane compound according to claim 16, wherein said first component comprises a blend of a first polyether based diphenylmethane diisocyanate prepolymer having a first NCO content and a second polyether based diphenylmethane diisocyanate prepolymer having a second NCO content, which second NCO content is different from aid first NCO content.

20. The polyurethane compound according to claim 19, wherein

said blend has a NCO content of about 13%.

21. The polyurethane compound according to claim 16, wherein said second component comprises a blend of two oligomer diamines having different equivalent weights and a diamine having chlorine groups attached to it.

22. A method for making a polyurethane compound comprising:
providing a formulation of polyurethane prepolymers in liquid form at room temperature;
providing an aromatic amine curing agent in liquid form at room temperature; and
mixing said polyurethane prepolymer formulation with said aromatic amine curing agent in a volumetric ratio of 0.9:1 to about 1:1.

23. The method according to claim 22, wherein said step of providing a formulation of polyurethane prepolymers comprises providing a blend of different polyether based MDI prepolymers.

24. The method according to claim 23, wherein said step of providing a blend of different polyether based MDI prepolymers comprises blending a first polyether based MDI prepolymer having a NCO content in the range of from about 13.5% to about 16.5% with a second polyether based MDI prepolymer having a NCO content in the range of from about 9.7% to about 12.7%.

25. The method according to claim 22, wherein said step of providing an aromatic amine curing agent comprises providing a blend of oligomeric diamines and an aromatic diamine with a catalytic component.

26. The method according to claim 25, wherein said blend providing step comprises blending two oligomeric diamines having different equivalent weights with said aromatic diamine.